

***Remarks***

Reconsideration of this Application is respectfully requested.

***I. Status of the Claims***

Claims 46-52 and 54 are pending in the application, with claims 46-49 being the independent claims.

***II. The Withdrawal of the Previous Rejection***

Applicants wish to thank the Examiner for withdrawing the 35 U.S.C. § 112, first paragraph, rejection of claims 46, 49-51 and 54 set forth in the previous Office Action.

***III. Summary of the Office Action***

In the Office Action dated December 29, 2005, the Examiner has made an apparent objection to multiple dependent claims and issued two rejections of the claims.

Based on the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

***IV. The Apparent Objection to Multiple Dependent Claims 50 and 54 is Traversed***

At Page 2 of the Office Action, the Examiner has apparently objected to multiple dependent claims 50 and 54, noting that some of the claims from which they depend have been withdrawn, and remarking that the claims have not been treated on the merits with regard to the withdrawn claims. Applicants respectfully traverse the Examiner's apparent objection.

Claims 47, 48 and 52 were withdrawn from consideration by the previous Examiner in this application in the Office Action dated July 9, 2004, following Applicants' reply to an Election of Species Requirement. Applicants wish to point out to the Examiner that claims that have been withdrawn from consideration due to an Election of Species Requirement can be rejoined and examined with the remaining claims once an allowable generic or linking claim has been identified. *See* 37 C.F.R. §§ 1.141(a) and 1.146, and *M.P.E.P.* § 809.02(c)(B).

Applicants respectfully assert that generic claims 46 and 49, and dependent claims 50, 51 and 54, encompassing a generic malt beverage, a generic chemical agent, the elected species, aminoguanidine, and beer as specific malt beverage, respectively, are allowable in view of the remarks contained hereinbelow. Claim 52 is drawn to the use of 1,2-phenylenediamine, and depends ultimately from claims 46 and 49. Thus, claims 46 and 49 represent allowable generic claims that link claim 52 and the elected species recited in claim 51. Accordingly, it is respectfully asserted that the withdrawal of claim 52 is in error. Applicants respectfully request that claim 52 be rejoined and examined with the remaining claims, and that this claim be allowed. *See* 37 C.F.R. §§ 1.141(a) and 1.146, and *M.P.E.P.* § 809.02(c)(B).

Similarly, Applicants respectfully assert that claims 47 and 48 are drawn to contacting the inhibiting agent with a malt (claim 47) or a wort (claim 48), and depend ultimately from claim 46. Thus, claim 46 represents an allowable generic claim that links claims 47 and 48 and the elected species recited in claim 49. Accordingly, it is respectfully asserted that the withdrawal of claims 47 and 48 is in error. Applicants respectfully request that claims 47 and 48 also be rejoined and examined with the

remaining claims, and that these claims be allowed. *See 37 C.F.R. §§ 1.141(a) and 1.146, and M.P.E.P. § 809.02(c)(B).*

In view of the above, Applicants respectfully contend that the apparent objection to claims 50 and 54 has been overcome. Reconsideration and withdrawal of this objection are therefore respectfully requested.

***V. The Rejection Under 35 U.S.C. § 102(a)***

At pages 2-3 of the Office Action, the Examiner has rejected claims 46, 49-51 and 54 under 35 U.S.C. § 102(a) as allegedly being anticipated by European Patent EP 0 773 285 A2 to Bravo *et al.* In rejecting the claims, the Examiner has stated that:

Bravo discloses a method of stabilizing the flavor of a fermented malt beverage, such as beer, comprising contacting the beverage with at least one agent that is immobilized on a solid support and that inhibits [sic] reduces, binds or otherwise inactivates one or more of the alpha-carbonyl Maillard reaction intermediates wherein the agent is aminoguanidine and the beer is made by producing a grain malt, producing a wort from the grain malt and fermenting the wort.

*See* paragraph bridging pages 2-3 of the Office Action. Applicants respectfully traverse this rejection.

First and foremost, Applicants assert that the Examiner's 35 U.S.C. § 102(a) rejection of claims 46, 49-51 and 54 is improper for the following reasons. 35 U.S.C. § 102(a) reads as follows:

A person shall be entitled to a patent unless -  
(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

See *M.P.E.P.*, § 2132, *Eight Edition* (Revised August 2005). (Emphasis added).

The M.P.E.P. states that "the term "others" in 35 U.S.C. 102(a) refers to any entity which is different from the inventive entity." See *M.P.E.P.*, § 2132, *Eight Edition* (Revised August 2005.) Applicants respectfully submit that the inventors of EP 0 773 285 A2, Adriana Bravo, Beatriz Sánchez and Rafael Rangel-Aldao, are also the inventors of the present application. Thus, contrary to the Examiner's contention, EP 0 773 285 A2 does not represent the knowledge of use "by others" of the presently claimed invention under 35 U.S.C. § 102(a).

Moreover, Applicants submit herewith a Declaration under 37 C.F.R. § 1.131 by one of the inventors, Adriana Bravo, Ph.D., stating that the invention presently claimed in the present application was reduced to practice by the above-identified inventors prior to the publication date of the European Patent, May 14, 1997.<sup>1</sup> Accordingly, the European Patent does not represent the description of the presently claimed invention in a printed publication before the invention thereof by Applicants.

Hence, for at least the reasons stated above, The European Patent is not available as prior art under 35 U.S.C. § 102(a) against the present claims. Applicants therefore respectfully request that the Examiner reconsider and withdraw the rejection of claims 46, 49-51 and 54 under 35 U.S.C. § 102(a).

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<sup>1</sup> An unsigned copy of the Declaration under 37 C.F.R. § 1.131 is being submitted herewith. A copy of the Declaration signed by the Declarant will be filed once it has been received by the undersigned.

**VI. The Rejection Under 35 U.S.C. § 103**

At pages 3-5 of the Office Action, the Examiner has rejected claims 46, 49-51 and 54 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,758,583 to Cerami *et al.* (hereinafter "Cerami") in view of Applicants' alleged admissions, U.S. Patent No. 3,711,293 to Geiger *et al.* (hereinafter "Geiger") and U.S. Patent No. 4,500,554 to Weetall *et al.* (hereinafter "Weetall".) In rejecting claims 46 and 54, the Examiner has stated that:

In regard to claims 46 and 54, Cerami discloses a method of stabilizing the flavor of a foodstuff comprising contacting the foodstuff with an agent that inhibits, reduces, binds or otherwise inactivates one or more alpha-dicarbonyl Maillard reaction intermediates. ***Cerami does not state that the foodstuff can be a malt beverage as claimed.*** However, Applicants admit that the spoilage of beer due to Maillard reactions is notoriously well known. As such, it would have been obvious to one of ordinary skill in the art to extend the method of Cerami to beer or other malt beverages since the method had been shown to prevent the formation of the advanced glycosylation end products formed in foodstuffs as a result of Maillard reactions, which would in turn prevented [sic] premature aging and spoilage. ***Cerami does not disclose the agent being immobilized on a support.*** However, it was well known in the art of alcoholic beverages to immobilize chemical agents on supports as evidenced by both Geiger and Weetall. As such, it would have been obvious to immobilize the chemical agent of Cerami on a support in order to allow for easy removal of the agent from the beverage and avoid a filtration or separation step later in the process.

See paragraph bridging pages 3-4 of the Office Action (internal citations omitted, emphasis added). Further, the Examiner has presented the same arguments in rejecting claims 49 and 54. Finally, with regard to claims 50 and 51, the Examiner has stated that

"Cerami discloses the agent being aminoguanidine." Applicants respectfully traverse these rejections.

The Examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness under 35 U.S.C. § 103. In particular, the M.P.E.P. sets forth the criteria necessary to satisfy this burden:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. ***The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).***

See *M.P.E.P.*, § 2142, *Eight Edition* (Revised August 2005). (Emphasis added).

As discussed below, the Examiner's rejections do not meet these criteria, and thus the Office has not established a *prima facie* case of obviousness.

The presently claimed invention is directed to methods of stabilizing the flavor of a fermented malt beverage or producing a malt beverage having stabilized flavor, comprising contacting the beverage, or a grain malt or wort used to produce the beverage, with ***an agent that is immobilized on a solid support*** and that ***inhibits, reduces, binds or otherwise inactivates one or more  $\alpha$ -dicarbonyl Maillard reaction intermediates***. As stated by the Examiner, at best Cerami discloses a method for inhibiting the advanced glycosylation of a target protein in foodstuff comprising contacting the target protein with a composition comprising an agent capable of reacting



with the carbonyl moiety of the early glycosylation product formed by the initial glycosylation of the target protein, and specifically discloses aminoguanidine as one of the agents used in the invention. *See* claims 1-6. As correctly acknowledged by the Examiner, however, *Cerami fails to disclose two essential elements of the claims of the present application*: 1. Cerami does not disclose malt beverages, let alone beer. Cerami provides only the generic teachings that agents inhibiting advanced glycosylation may be added to foodstuff. The Merriam-Webster's Collegiate Dictionary, Tenth Edition, defines *foodstuff* as "a substance with food value", specifically, "the raw material of food before or after processing", and defines *food* as "nutriment in solid form." *See id.*, pages 452-453. While one could arguably acknowledge that malt beverages and beer provide some form of nutriment, malt beverages and beer are certainly not in solid form, and thus do not qualify as foodstuff, as disclosed in Cerami. Accordingly, malt beverages and beer are not included in the foodstuff disclosed by Cerami. 2. Cerami fails to teach *an agent immobilized on a solid support*.

Geiger or Weetall do not cure the deficiencies of Cerami. Geiger discloses a method of clarifying and stabilizing a fermented beverage fluid comprising filtering the beverage through a filter made of polyamide resin coated on a support material, specifically kieselguhr or silica. *See* cols. 3-5. According to Geiger, the polyamide-modified silica or silicate materials of the invention are useful in clarifying and stabilizing beer, by removing deleterious solute components, *i.e.*, materials dissolved in solutions or colloidal dispersions in fluids. *See* col. 1, lines 26-40. Hence, Geiger fails to teach or suggest an agent that is immobilized on a solid support and that *inhibits, reduces, binds or otherwise inactivates one or more  $\alpha$ -dicarbonyl Maillard reaction*

*intermediates*, as claimed in the present application. Further, with regard to claim 51, Geiger fails to disclose or suggest aminoguanidine that is immobilized on a solid support.

Weetall discloses a method for stabilizing wine comprising contacting the wine with an immobilized tannic acid to remove haze components, and separating the treated wine from the tannic acid composite. *See* claim 1. Like Cerami and Geiger above, Weetall fails to teach or suggest an agent that is immobilized on a solid support and that inhibits, reduces, binds or otherwise inactivates one or more  $\alpha$ -dicarbonyl Maillard reaction intermediates, as claimed in the present application. Further, with regard to claim 51, Weetall fails to disclose or suggest aminoguanidine that is immobilized on a solid support.

Applicants respectfully assert that with regard to the first criterion for a *prima facie* case of obviousness, a *prima facie* case of obviousness has not been made because there is no suggestion or motivation in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the agents disclosed in Cerami by immobilizing them on solid support and apply said agents to malt beverages. In her rejection, the Examiner has alleged that Applicants admit that the spoilage of beer due to Maillard reactions is notoriously well known. The Examiner's allegation, however, is impermissible. As stated above, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Further, the Examiner has stated that it was well known in the art of alcoholic beverages to immobilize chemical agents on supports as evidenced by both



Geiger and Weetall. According to the Examiner, it would have been obvious to immobilize the chemical agent of Cerami on a support in order to allow for easy removal of the agent from the beverage and avoid a filtration or separation step later in the process. However, both Geiger and Weetall fail to disclose or suggest an agent that is immobilized on a solid support and that inhibits, reduces, binds or otherwise inactivates one or more  $\alpha$ -dicarbonyl Maillard reaction intermediates, and the skilled artisan would not regard the agents immobilized on a solid support claimed in the present application as a substitute for the agents disclosed by Cerami. Moreover, the motivation allegedly provided by the Examiner to make such a substitution is not reasonable, as the agents used in the methods claimed in the present application are immobilized on solid supports, such as membranes and beads, which need to be removed at a later step from the beverage. Clearly, the motivation to combine the references provided by the Examiner is in sharp contrast with Applicants' claimed invention, its features and its purpose. Accordingly, the Examiner has failed to provide an objective technical reasoning why one of ordinary skill in the art would be motivated to replace the agents disclosed by Cerami with agents immobilized on solid support, as claimed in the present application.

With regard to the second criterion, a *prima facie* case of obviousness has not been made because there would have been no reasonable expectation of success. At best, one of ordinary skill in the art, in view of the disclosure of Cerami, would have expected that immobilization, on a solid support, of the agents that inhibit, reduce, bind or inactivate one or more  $\alpha$ -dicarbonyl Maillard reaction intermediates, would affect their reaction with  $\alpha$ -dicarbonyl Maillard reaction intermediates, possibly because of changes in the chemical-physical properties of the agents. Accordingly, based solely on the cited

art, there would have been no reasonable expectation of success in immobilizing the agents disclosed by Cerami on a solid support and having the immobilized agents work in the presently claimed methods.

With regard to the third criterion, a *prima facie* case of obviousness has not been made because none of the references, whether taken alone or in combination with each other, teach or suggest all of the claim limitations. The Examiner has acknowledged that Cerami fails to disclose a malt beverage and an agent immobilized on a solid support. As stated above, Geiger and Weetall do not cure the deficiencies of Cerami. Both references, in fact, fail to disclose or suggest an agent that is immobilized on a solid support and that inhibits, reduces, binds or otherwise inactivates one or more  $\alpha$ -dicarbonyl Maillard reaction intermediates. Further, none of the cited references discloses or suggests aminoguanidine that is immobilized on a solid support.

Accordingly, Applicants respectfully submit that for at least the reasons stated above, the rejection of claims 46, 49-51 and 54 under 35 U.S.C. § 103(a) is improper, and should be withdrawn. Reconsideration and withdrawal of the rejection are, therefore, respectfully requested.

***Conclusion***

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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